

IN THE SPECIFICATION

Please amend page 7, lines 12-14 to read as follows (a marked-up version of the paragraph showing the amendments thereto is attached as Exhibit A):

a¹ Referring additionally to Figure 9, the stator laminated core 148 has pole teeth 160 which are separated from pole teeth 188 of the rotor core 182 by two vertically extending concentric annular gaps 192.

✓ IN THE CLAIMS

✓ Please cancel claims 6, 7, 14 and 15.

Please amend claims 1, 5, 9, and 13 as follows (a marked-up version of the claims showing the amendments thereto is attached as Exhibit B):.

a² 1. (Once amended) A variable reluctance electric motor comprising:

a stator formed having a plurality of individual phase segments which are arranged in an annular array, the segments being provided with phase windings and stator pole teeth, said phase segments being connected with a stationary bearing race, and said pole teeth projecting in a generally radial direction; and

a rotor formed integrally with a bearing race, said rotor being vertically supported by said stator by a plurality of bearing members, said rotor having a plurality of rotor pole teeth disposed adjacent said stator pole teeth, said rotor pole teeth being separated from said stator pole teeth by a first generally vertically extending gap.

a³ 5. (Once amended) A variable reluctance motor as described in Claim 1 wherein said rotor and said stator have pole teeth facing each other across two vertical concentric annular gaps.

a⁴ 9. (Once amended) An aimable ordinance platform for a defense vehicle powered by a variable reluctance electric motor comprising:

a base connected with a stator formed having a plurality of individual phase segments which are arranged in an annular array, the segments being provided with phase windings and stator pole teeth, said phase segments being connected with a stationary bearing race, and said pole teeth projecting in a generally radial direction; and

a rotor formed integrally with a bearing race, said rotor being vertically supported by said stator by a plurality of bearing members, said rotor having a plurality of rotor pole teeth disposed adjacent said stator pole teeth, said rotor pole teeth being separated from said stator pole teeth by a first vertically extending gap.

a⁵ 13. (Once amended) An aimable ordinance platform for a defense vehicle as described in Claim 9 further including a second vertical gap and wherein said rotor and said stator have pole teeth facing each other across two vertical concentric annular gaps.

Please add new claims 18-21:

a⁶ 18. (New) A variable reluctance electric motor comprising:

a stator formed having a plurality of individual phase segments which are arranged in an annular array, the segments being provided with phase windings and stator pole teeth, said phase segments being connected with a stationary bearing race, and said pole teeth projecting in a generally radial direction and wherein said stator phase windings are vertically suspended underneath said bearing race of said stator; and

a rotor formed integrally with a bearing race, said rotor being vertically supported by said stator by a plurality of bearing members, said rotor having a plurality of rotor pole teeth

disposed adjacent said stator pole teeth, said rotor pole teeth being separated from said stator pole teeth by a first generally vertically extending gap.

26 cont.
19. (New) A variable reluctance electric motor comprising:

a stator formed having a plurality of individual phase segments which are arranged in an annular array, the segments being provided with phase windings and stator pole teeth, said phase segments being connected with a stationary bearing race, and said pole teeth projecting in a generally radial direction; and

a rotor formed integrally with a bearing race, said rotor being vertically supported by said stator by a plurality of bearing members, said rotor having a plurality of rotor pole teeth disposed adjacent said stator pole teeth, said rotor pole teeth being separated from said stator pole teeth by a first generally vertically extending gap, and wherein said rotor has a core which is vertically suspended underneath said bearing race of said rotor.

20. (New) An aimable ordinance platform for a defense vehicle powered by a variable reluctance electric motor comprising:

a base connected with a stator formed having a plurality of individual phase segments which are arranged in an annular array, the segments being provided with phase windings and stator pole teeth, said phase segments being connected with a stationary bearing race, and said pole teeth projecting in a generally radial direction, and herein said stator has a coil winding which is vertically supported underneath said bearing race of said stator; and

a rotor formed integrally with a bearing race, said rotor being vertically supported by said stator by a plurality of bearing members, said rotor having a plurality of rotor pole teeth disposed adjacent said stator pole teeth, said rotor pole teeth being separated from said stator pole teeth by a first vertically extending gap.

*a 6
cancel* 21. (New) An aimable ordinance platform for a defense vehicle powered by a variable reluctance electric motor comprising:

a base connected with a stator formed having a plurality of individual phase segments which are arranged in an annular array, the segments being provided with phase windings and stator pole teeth, said phase segments being connected with a stationary bearing race, and said pole teeth projecting in a generally radial direction; and

a rotor formed integrally with a bearing race, said rotor being vertically supported by said stator by a plurality of bearing members, said rotor having a plurality of rotor pole teeth disposed adjacent said stator pole teeth, said rotor pole teeth being separated from said stator pole teeth by a first vertically extending gap, and said rotor has a core which is vertically suspended underneath said bearing race of said rotor.

REMARKS

In the above noted Office Action, claims 1-5, 9-13 were rejected under 35 USC 102(b) as being anticipated by Geppert et al, U.S. 4,234,808. Claims 6, 7, 14 and 15 were objected to but would be allowable if rewritten in independent form. Applicants amend claims 1, 5, 9 and 13. Prior dependent claims 6, 7, 14 and 15 have been canceled and are presented in independent form as new claims 18-21.

Reexamination and reconsideration of the non allowed claims are respectfully requested. Further, a Supplemental Information Disclosure Statement Under 35 C.F.R. § 1.97 is being submitted herewith and Applicants request consideration of same.

Applicants wish to thank the Examiner for pointing out errors in the drawings. Proposed amendments to the drawings in red ink are attached for the Examiner's approval as Exhibit C.

The title has been amended as suggested by the Examiner.

Claims 1 and 9 have been corrected to alleviate the informalities noted by the Examiner. Applicants wish to thank the Examiner for pointing out such error.

As mentioned previously, claims 1-5, and 9-13 were rejected as being anticipated by Geppert et al. With regard to claim 9 and the dependent claims therefrom, Applicants respectfully submit that Geppert et al. is non-analogous art. Applicants bring forth an amiable ordinance platform for a defense vehicle. Geppert is for a step motor utilized for a typewriter. It would not be expected that one knowledgeable in the art of military vehicle ordinance platforms would look to the art of electric typewriters in order to develop an ordinance platforms. Ordinance platforms have weight, strength and ruggedness requirements and operational requirements in harsh environments that are totally foreign to that of electric typewriters. Accordingly, Applicants respectfully submit that Geppert is non-analogous art.


Ignoring the non-applicability of Geppert to independent claim 9 and dependent claims thereon, Geppert fails to teach or disclose Applicants' invention as provided in claims 1 or 9. Specifically, Geppert is not a variable reluctance motor but a hybrid stepper motor. Geppert has permanent magnets 16. By virtue of having permanent magnets, Geppert has the disadvantage of "detent torque". Detent torque is the torque tending to hold the rotor in a position wherein a pair of north and south rotor teeth are aligned with two of the stator poles. Applicant's inventive variable reluctance motor does not have permanent magnets. Therefore, Applicant's motor spins freely without detent torque. Additionally, Geppert provides a rotor which is horizontally supported by the stator and not vertically supported. Geppert does not disclose a vertically extending annular gap between the stator and rotor as best shown in the diagramic side view of Figure 9 of Geppert, the rotor of Geppert is orientated horizontally. In sharp contrast, as shown in Figures 4 and 8 of Applicants' invention, Applicants' invention has a rotor that is vertically supported by the stator and

accordingly the bearing has greater gravitational forces acting upon it than the bearings of Geppert. This limitation is further confirmed by a review of Geppert's Figure 1 wherein a large portion of the stator resides over the rotor.

Applicants' response to the rejection of the remaining independent claims has been incorporated within Applicants' response to the rejections of claims 1 and 9 and in the interest of conservation of the Examiner's valuable time, such response is not repeated.

By this amendment, Applicants have shown wherein the Examiner's rejections and objections are respectfully traversed. As the application is otherwise in condition for allowance, such action is respectfully requested.

Respectfully submitted,



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AMENDED PARAGRAPHS WITH MARKINGS TO SHOW CHANGES MADE



The title has been amended as follows:

[TORQUE RING]DEFENSE VEHICLE AIMING ORDINANCE PLATFORM
HAVING VARIABLE RELUCTANCE MOTOR

Page 7, lines 12-14 have been amended as follows:.

Referring additionally to Figure 9, the stator laminated core 148 has pole teeth 160 which are separated from pole teeth 188 of the rotor core 182 by two vertically extending concentric annular gaps 192.

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